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## **PALAEARCTIC SPECIES OF THE GENUS *LAMPROCHROMUS* MIK, 1878 (DIPTERA: DOLICHOPODIDAE)**

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A new long-legged fly species *Lamprochromus occidasiaticus* **sp. n.** from Iran and Turkey is described and illustrated. The new species appears to be quite distinct in having elongate-ovate postpedicel of antenna, abdomen entirely dark, hind coxa and femur partly dark, and male phallus with strongly curved thick seta. A catalog and key to ten *Lamprochromus* species inhabiting the Palearctic Region is provided.

**KEY WORDS:** Dolichopodidae, *Lamprochromus*, new species, key, checklist, Iran, Turkey, Palearctic Region.

**И. Я. Гричанов\*, Азам Ахмади. Палеарктические виды рода *Lamprochromus* Mik, 1878 (Diptera: Dolichopodidae) // Дальневосточный энтомолог. 2017. N 336. С. 1-12.**

Из Ирана и Турции описан *Lamprochromus occidasiaticus* **sp. n.** Новый вид отличается от других видов рода удлинено-овальным третьим члеником усика, полностью темным брюшком, темными задними тазиками и частично темными задними бедрами, сильно изогнутой толстой щетинкой на фаллусе самца. Даны каталог и определительная таблица десяти видов рода *Lamprochromus* Палеарктики.

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## INTRODUCTION

There are 13 Holarctic *Lamprochromus* species including 9 from the Palaearctic Region and one from the Afrotropical Region (Grichanov, 2014). The genus belongs to the subfamily Sympycninae, differing from other genera by the following combination of characters. Body small, often yellow-brown to bluish black; antennal arista-like stylus dorsal or basodorsal; mesonotum with two velvety black or matt brown large lateral spots above the wing base, sometimes poorly developed; 3 or 4 pairs of dorsocentral bristles; acrostichal setae in two regular rows; hind femur with true subapical bristle (Grichanov *et al.*, 2011). A key to the Palaearctic species was provided by Negrobov & Chalaya (1988).

Treating a new material collected during 2016 season from 64 sites in the Markazi and Lorestan provinces, we have found a male and a female of a new peculiar *Lamprochromus* species described below. Additional male and female of the same species have been found in the Turkish collection of the Zoological Museum of Moscow State University, Moscow, Russia. In this paper a catalog and identification key to Palaearctic species of *Lamprochromus* are also presented.

## MATERIAL AND METHODS

The holotype and paratypes of the new species have been sampled by standard sweep net and are housed at the Zoological Institute of the Russian Academy of Sciences, St. Petersburg (ZIN) and the Zoological Museum of Moscow State University, Moscow (ZMUM). The other material examined is deposited also at the Department of Zoology, Tel Aviv University, Israel (TAU).

The specimens were studied and illustrated with ZEISS Discovery V-12 stereomicroscope and AxioCam MRc5 camera. Morphological terminology follows Cumming and Wood (2009). The relative lengths of the podomeres are given in millimetres. Body length is measured from the base of the antenna to the tip of abdominal segment 7. Wing length is measured from the base to the wing apex. Figure showing the male genitalia in lateral view is oriented as they appear on the intact specimen (rotated 180° and lateroflexed to the right), with the morphologically ventral surface of the genitalia facing up, dorsal surface down, anterior end facing right and posterior end facing left.

## TAXONOMY

### Family Dolichopodidae

#### Genus *Lamprochromus* Mik, 1878

*Lamprochromus* Mik, 1878: 4 (subfam. Sympycninae).

Type species: *Chrysotus elegans* Meigen, 1830 [= *Lamprochromus bifasciatus* (Macquart)], by original designation.

### Key to the Palearctic species of the genus *Lamprochromus*

1. Males: 2nd and 3rd abdominal tergites usually yellow, transparent ..... 2  
 – Females: abdomen usually entirely dark metallic green ..... 10
2. Abdomen entirely dark metallic green ..... 3  
 – Abdomen yellow at base ..... 5
3. Postpedicel triangular, pointed at apex, slightly longer than high; coxae yellow, mid coxa with dark stripe; 1.7 ..... *L. defectivus* Strobl  
 – Postpedicel ovate or subtriangular, rounded at apex, at least 1.5 times longer than high; mid and hind coxae largely dark ..... 4
4. Postpedicel 1.5 times longer than high; fore coxa covered with long fine anterior cilia; mid and hind coxae yellow, blackish at base; hind femur entirely yellow; cercus as long as epandrium; 2.0 ..... *L. dalmaticus* Parent  
 – Postpedicel 2 times longer than high; fore coxa covered with short light anterior hairs; mid and hind coxae brown, at most yellow at apex; hind femur brown or brownish in distal half or third at least dorsally; cercus distinctly (3/5) shorter than epandrium; 2.3–2.5 ..... *L. occidasiaticus* **sp. n.**
5. Postpedicel triangular, pointed at apex, with long sparse hairs; 1.5–2.0 .....  
 ..... *L. bifasciatus* (Macquart)  
 – Postpedicel ovate-triangular, rounded at apex, usually with short dense hairs ..... 6
6. Postpedicel not longer than high; at least scape and pedicel of antenna yellow; each lobe of phallus with long pointed process apically ..... 7  
 – Postpedicel distinctly longer than high; antenna entirely brown or black; phallus with strong spines or without spines apically ..... 8
7. Fore coxa with yellow bristles at apex; hind tibia flattened laterally, mainly brown; 1.5–2.0 ..... *L. speciosus* (Loew)  
 – Fore coxa with dark bristles at apex; hind tibia simple, mainly yellow; 1.6 .....  
 ..... *L. kowarzi* Negrobov et Tshalaja
8. Phallus without spines apically; surstylus rounded at apex; frons violet-green with red shine; 1.2 ..... *L. moraviensis* Negrobov et Tshalaja  
 – Each lobe of phallus with strong spine apically; surstylus truncated or angular at apex; frons green, with violet shine in middle ..... 9
9. Face silvery grey; mesonotum with poorly developed brown lateral spots; 2.1 ....  
 ..... *L. buchtojarovi* Negrobov et Tshalaja  
 – Face silvery white; mesonotum with velvety black or brown lateral spots; 2.0 ....  
 ..... *L. semiflavus* (Strobl)
10. Abdomen yellow at base ..... 11  
 – Abdomen entirely dark metallic green ..... 13
11. Fore coxa with yellow bristles at apex ..... *L. speciosus* (Loew)  
 – Fore coxa with dark bristles at apex. .... 12
12. Pleura black-green ..... *L. amabilis* Parent  
 – Pleura largely yellow-brown ..... *L. kowarzi* Negrobov et Tshalaja
13. Postpedicel almost oval, rounded at apex ..... *L. semiflavus* (Strobl)  
 – Postpedicel triangular, angular at apex ..... 14

14. Hind femur brown in distal half or third at least dorsally .....  
 ..... *L. occidasiaticus* **sp. n.**  
 – Hind femur entirely yellow .....15  
 15. Mid coxa entirely yellow; hind basitarsus light at base; wing anal vein distinct ..  
 ..... *L. bifasciatus* (Macquart)  
 – Mid coxa with grey spot; hind basitarsus entirely dark; wing anal vein absent .....  
 ..... *L. defectivus* Strobl

***Lamprochromus occidasiaticus* Grichanov et Ahmadi, sp. n.**

Figs 1–6

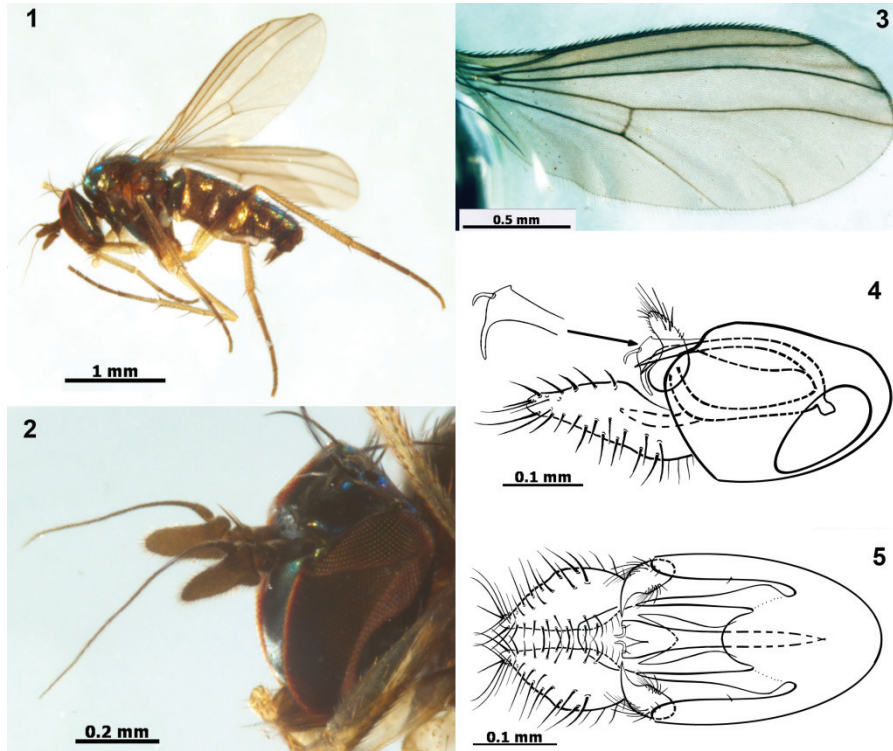
TYPE MATERIAL. Holotype – ♂, **Turkey**: near Manavgat River, 29.III 2007, N. Vikhrev [ZMUM]. Paratypes: 1 ♀, same label [ZMUM]; 1 ♂, 1 ♀, Iran: Markazi province: Seyed Esmaeel road, 22.V 2016, 34°13.68' N, 49°08.77' E, 2073 m, A. Ahmadi [ZIN].

DESCRIPTION. Male (Figs 1–5). *Head*: frons shining blue-violet; face black, densely silvery-white pollinose, gradually narrowed downward; face under antennae nearly 2 times as wide as height of postpedicel; eyes widely separated in lower half of face; palpi and proboscis black with short black setae; antenna black; scape bare; pedicel simple, with ring of short setulae and 1–2 longer setae dorsally; postpedicel elongate ovate, swollen at base, with rounded apex, 2 times as long as high, densely short pubescent; stylus simple, shortly pubescent, basodorsal, 1st segment of stylus thick; postoculars in single row, upper setae black, lower postoculars white. Length ratio of scape to pedicel to postpedicel to stylus (1st and 2nd segments), 0.1: 0.06: 0.2: 0.06: 0.56.

*Thorax*: mostly bluish or greenish black, grey pollinose; mesonotum anteriorly with pair of shining violet-black spots; notopleura with large mat-black spot; setae black; proepisternum without strong setae, with 2–3 short cilia; 4 (2+2) dorsocentrals of approximately equal length with 2–3 hairs in front of the 1st seta; about 10 pairs of biserial acrostichals; 1 pair of strong scutellar setae and pair of lateral hairs.

*Legs*: including fore coxa mostly yellow; mid and hind coxae brown, at most yellow at apex; tarsi brown or black from apex of basitarsus; fore and mid femora yellow or brownish dorsally, hind femur brown dorsally in apical half to third. Fore coxa covered with short light anterior hairs, with some strong black apical setae, mid coxa with few black setae, and hind coxa with 1 black seta. Fore femur with 1 posteroventral subapical stiff cilia; fore tibia with 1 anterodorsal seta at 1/4, with weak anterodorsal serration along distal 2/3; fore tarsus simple. Length ratio of fore tibia to tarsus (segments from first to fifth), 0.62: 0.31: 0.14: 0.10: 0.09: 0.09. Mid femur with 1 anterior and 1 posterior subapical setae; mid tibia with anterodorsal bristles at 1/4 and 1/2, with 2 shorter posterodorsal setae and 4–5 apical setae; mid tarsus simple. Length ratio of mid tibia to tarsus (segments from first to fifth), 0.86: 0.42: 0.21: 0.17: 0.11: 0.11. Hind femur with anterior subapical seta, with weak subapical posteroventral seta; hind tibia with 2 strong anterodorsal, 2–4 posterodorsal, 3–5 inconspicuous ventral and 4–5 apical setae. Length ratio of hind tibia to tarsus (segments from first to fifth), 1.09: 0.31: 0.34: 0.22: 0.16: 0.14.

*Wing*: greyish with brown veins; ratio of cross-vein *dm-cu* to apical part of  $CuA_1$ , 14: 58; distal part of  $M_{1+2}$  weakly convex anteriorly, almost parallel to  $R_{4+5}$ ; anal vein indistinct, fold-like; lower calypter yellow with white setae; halter yellow.



Figs. 1–5. *Lamprochromus occidasiaticus*, sp. n. 1 – male habitus; 2 – male head, lateral view; 3 – male wing; 4 – male hypopygium, lateral view, with inset showing phallus; 5 – male hypopygium, ventral view.

*Abdomen*: metallic bluish or greenish-black, with black vestiture; hypopygium brown-black with black cerci. Epandrium rounded-oval (lateral view). Epandrial lobe as narrow strip along ventral margin of epandrium extending from base of hypandrium to base of surstylus, with short seta at middle and 2 short setae at apex. Hypandrium fused with epandrium at base, with short and broad semi-oval medial plate and 2 long and narrow symmetrical lateral arms reaching base of surstylus. Parameral sheath sclerotised, widely bifurcated distally, with narrow symmetrical lateral arms. Phallus of typical shape for genus (see Negrobov & Tshalaja, 1988), gradually expanded from base of hypandrium distally (lateral and ventral view), bilobed apically; each lateral lobe angular ventrally at apex, bearing long narrow dorsal process and strongly curved thick apical spine. Surstylus with fused lobes,

forming broad plate, ovate or subtriangular (lateral view), with strongly curved pointed apex (ventral view), covered with numerous setae, which rather long at middle of surstylus ventrally. Cercus subtriangular, distinctly shorter than epandrium (3/5), with long black setae; cercus nearly 2 times longer than wide at middle, with acute distal angle and rounded lateroventral angle; cerci fused at base, forming unpaired projected organ.

Female (Fig. 6): Antenna shorter, postpedicel as long as high, Face wider than in male, 2 times wider than postpedicel, nearly parallel sided. Palpus larger subtriangular. Length ratio of fore tibia to tarsus (segments from first to fifth), 70: 31: 13: 9: 8: 9. Length ratio of mid tibia to tarsus (segments from first to fifth), 90: 44: 18: 15: 8: 10. Length ratio of hind tibia to tarsus (segments from first to fifth), 120: 32: 35: 23: 14: 12.



Fig. 6. *Lamprochromus occidasiaticus* sp. n., female habitus.

MEASUREMENTS (in mm). Body length without antennae: ♂ 2.5, ♀ 2.3; antenna length: ♂ 0.8, ♀ 0.7; wing length ♂ 2.4, ♀ 2.2; wing width 0.8.

DISTRIBUTION. Iran, Turkey.

ETYMOLOGY. The species name originates from Latin "*Asia occidentalis*" (West Asia).

DIAGNOSIS. The new species is close to *Lamprochromus dalmaticus* Parent, differing in longer postpedicel, 2 times longer than high; mesonotum having anteriorly a pair of shining violet-black spots; wing anal vein being indistinct, fold-like; fore coxa covered with short light anterior hairs; mid and hind coxae brown, at most yellow at apex; brown or brownish hind femur in distal half or third at least dorsally; cercus distinctly (3/5) shorter than epandrium. *L. dalmaticus* was described with postpedicel 1.5 times longer than high; mesonotum having anteriorly a pair of copper spots; wing anal vein being rather distinct; fore coxa covered with long fine anterior cilia; mid and hind coxae yellow, blackish at base; entirely yellow hind femur; cercus as long as hypopygium. In addition, *Lamprochromus occidasiaticus* is distinctly larger, than *L. dalmaticus* (see key above).

### Catalog of Palaearctic *Lamprochromus* species and new records

#### *Lamprochromus amabilis* Parent, 1944

*Lamprochromus amabilis* Parent, 1944: 122. Type locality: China: “Chensi, Yulinnfou”.

DISTRIBUTION. China (Shaanxi).

NOTES. The species was described by a single female holotype and was never recorded again.

#### *Lamprochromus bifasciatus* (Macquart, 1827)

*Medetera bifasciata* Macquart, 1827: 48; Zetterstedt, 1843: 463 (as synonym of *Rhaphium fasciatum* Meigen, 1824); Parent, 1938: 661 (as synonym of *Lamprochromus elegans*); Meuffels *et al.*, 1991: 100 (*Lamprochromus*); Grichanov *et al.*, 2011a: 35, Fig. 55 (*Lamprochromus*); Grichanov *et al.*, 2011b: 32, Fig. 70 (*Lamprochromus*). Type locality: not given [North France].

*Chrysotus elegans* Meigen, 1830: 362; Loew, 1857: 17 (*Gymnopternus*); Kowarz, 1868: 219 (*Sympycnus*); Mik, 1878: 4 (*Lamprochromus*); Pârvu, 1984: 202, Fig. 10 (*Lamprochromus*); Parent, 1938: 661, Figs. 914–916 (*Lamprochromus*); Negrobov & Tshalaja, 1988: 898, Figs. 4–5 (*Lamprochromus*). (Synonymised by Meuffels *et al.*, 1991: 100). Type locality: not given.

*Medetera gratiosa* Meigen, 1838: 158; Parent, 1925b: 54, 57 (as synonym of *Lamprochromus elegans*).

*Dolichopus bifasciellus* Zetterstedt, 1843: 608; Loew, 1857: 44 (*Sympycnus*); Mik, 1878: 7 (*Lamprochromus*). (Synonymised by Kowarz, 1868: 219). Type locality: “Scania, Esperöd, Ostrogothia, Häradshammar, Lärketorp, Wadstena, Uplandia, Holmiam, Lapponia Umensis, Wilhelmina, in alpe Dovre, Norvegiae” [Sweden, Norway].

*Medetera cingulum* Parent (Meigen in coll.), 1925a: 137 (footnote); Parent, 1925b: 52, 57 (as synonym of *Lamprochromus elegans*); Parent, 1938: 661 (as synonym of *Lamprochromus elegans*). Type locality: not given.

DISTRIBUTION. Austria, Belgium, Bulgaria, Czech, France, Germany, Hungary, Italy, Netherlands, Norway, Poland, Romania, Russia (Leningrad), Slovakia, Spain, Sweden, Switzerland, UK. Here excluded from the fauna of Israel.

***Lamprochromus buchtojarovi* Negrobov et Tshalaja, 1988**

*Lamprochromus buchtojarovi* Negrobov & Tshalaja, 1988: 797, Figs. 7–9. Type locality: Russia: Chuvashia, Cheboksary env.

DISTRIBUTION. Russia (Cheboksary).

***Lamprochromus dalmaticus* Parent, 1927**

*Lamprochromus dalmaticus* Parent, 1927: 45. Type locality: Croatia: “Côte Dalmate, Raguse”.

DISTRIBUTION. Croatia.

NOTES. A record of this species from Erzurum, Turkey (Naglis, 2011) belongs to *L. occidasiticus* (S. Naglis, 2016 pers. comm.; unreferenced).

***Lamprochromus defectivus* Strobl, 1899**

*Lamprochromus defectivus* Strobl, 1899: 121. Type locality: Spain: Algeciras.

DISTRIBUTION. Greece (Crete) [needs confirmation], Spain.

NOTES. Negrobov & Tshalaja (1988) described *L. defectivus* male postpedicel with pointed apex (in key), but erroneously figured the postpedicel with rounded apex (Negrobov & Tshalaja, 1988: Fig. 12).

***Lamprochromus kowarzi* Negrobov et Tshalaja, 1988**

*Lamprochromus kowarzi* Negrobov & Tshalaja, 1988: 797, Figs. 4–6; Grichanov, 2007a: 67 (as *Lamprochromus bifasciatus*); Grichanov, 2007b: 146 (as *Lamprochromus speciosus*, in part); Grichanov & Tomkovich, 2009: 107 (as *Lamprochromus bifasciatus*); Grichanov & Ovsyannikova, 2016: 288 (as *Lamprochromus speciosus*). Type locality: Slovakia: Lozonez.

MATERIAL EXAMINED. **Azerbaijan:** Lənkəran, Hirkan-Bürçəli env., 16, 17, 18.V 2009, 1 ♂, 2 ♀, Grichanov & Tomkovich [ZMUM]; **Israel:** Rosh Ha'Ayin, 10.IV 1976, 14 ♂♀, A. Freidberg [TAU]; Golan [Heights], Qusbiye, 15.IV 1982, 1 ♂, F. Kaplan [TAU]; Park HaYarden, 30.IX 1982, 1 ♀, A. Freidberg [TAU]; Nahal Tut, 18.V 1982, 1 ♀, A. Freidberg [TAU]; **Russia:** Chechnya, Sernovodskaya, health resort, 43.33°N, 45.17°E, 15.VI 2016, 1 ♀, Grichanov [ZIN].

DISTRIBUTION. Azerbaijan, Israel, Russia (Chechnya), Slovakia.

***Lamprochromus moraviensis* Negrobov et Tshalaja, 1988**

*Lamprochromus moraviensis* Negrobov & Tshalaja, 1988: 795, Figs. 1–3. Type locality: Moravia S.

DISTRIBUTION. Czech Republic.



### ***Lamprochromus semiflavus* (Strobl, 1880)**

*Diaphorus semiflavus* Strobl, 1880: 58; Mik, 1881: 346 (as synonym of *Lamprochromus bifasciatus*); Parent, 1925: 138 (as *Lamprochromus strobli* nom. nov.); Negrobov, 1991: 58 (as synonym of *Lamprochromus elegans*). Type locality: Austria: Conventgarten.

*Lamprochromus strobli* Parent, 1925a: 141 (unnecessary nom. nov. for *Lamprochromus semiflavus*); Parent, 1938: 663, Figs. 920–921; Negrobov & Tshalaja, 1988: 898, Figs. 6–8.

**MATERIAL EXAMINED.** **Russia:** Voronezh Region, Liski distr., Divnogorye, 8-9.VII 1994, 8 ♂♀, Zlobin [ZIN]; Pskov Region, Velikie Luki env., 7, 10, 26, 29, 30.VI 1997, 10 ♂♀, Grichanov [ZIN]; Orel city, Orlik River bank, 6.VII 2015, 1 ♀, Grichanov [ZIN]; Moscow region, Naro-Fominsk, park, 55.39 N, 36.74 E, 160 m, 22.VI 2013, 1 ♂, D. Gavryushin [ZMUM].

**DISTRIBUTION.** Austria, Belgium, Bulgaria, Czech, Finland, France, Germany, Hungary, Netherlands, Poland, Portugal, Russia (Orel, Pskov, Voronezh), Turkey (Adiyaman), UK.

**NOTES.** Soon after description, *Diaphorus semiflavus* was placed in synonymy with *Lamprochromus elegans* (now synonym of *L. bifasciatus*), single species of the genus known at that time (Mik, 1881). Later, the synonymy was republished by Becker (1918) and Negrobov (1991) without explanations. Strobl (1899) described *L. defectivus*, distinguishing his new species from the misidentified *L. elegans* by pointed, rather than rounded, apex of postpedicel. Parent (1925a), revising available collections and original descriptions, found that both *L. defectivus* and *L. elegans* well differ from *L. semiflavus* and *L. speciosus* by pointed, rather than rounded, apex of postpedicel. He restored virtually the name “*semiflavus*”, but (having no types in his hands) he proposed a new name *L. strobli* for the species concept published by Strobl under the name *D. semiflavus*. Parent (1938) mentioned the latter name in synonymy to *L. strobli*. The recent catalogs and checklists follow synonymy of either Parent or Mik and Negrobov. Here we consider the name “*semiflavus*” as valid name, the opinion of Parent as reasonable, and we place the name *L. strobli* in synonymy to *L. semiflavus* according with the principle of priority. The hypopygium including phallus of *L. semiflavus* is identical to that of *L. buchtojarovi* as pictured by Negrobov & Tshalaja (1988).

### ***Lamprochromus speciosus* (Loew, 1871)**

*Sympycnus speciosus* Loew, 1871: 299; Kowarz, 1889: 175 (*Lamprochromus*); Parent, 1938: 662, Figs. 917–919 (*Lamprochromus*); Pârvu, 1984: 202, Fig. 11 (*Lamprochromus*); Negrobov & Tshalaja, 1988: 798, Figs. 1–3 (*Lamprochromus*); Grichanov, 2007b: 146 (*Lamprochromus speciosus*, in part). Type locality: Tajikistan: “Sarawschan Thal” [=Zeravshan valley].

**MATERIAL EXAMINED.** **South Tajikistan:** Dusti env., 24.VIII.1987, 1 ♂, Grichanov; **Israel:** Park HaYarden, 30.IX.1982, 4 ♂♀, A. Freidberg [TAU]; Israel: Ein Hajla, 11.V.1977, 3 ♂♀, A. Freidberg [TAU].

DISTRIBUTION. Bulgaria, Egypt, France, Greece, Hungary, Iran, Iraq, Israel, Romania, Russia (Krasnodar), Spain (Canary Is.), Uzbekistan, Tajikistan, Turkey (Muğla), Ukraine (Odessa). Here excluded from the fauna of Azerbaijan and Chechen Republic of Russia.

### Discussion

Species of the genus *Lamprochromus* are rather rare in collections. Six of the nine previously described Palaearctic species have been known only from their original descriptions, often from single type specimen. Our study of series of *L. kowarzi*, *L. semiflavus* and *L. speciosus* males and females has proved the stability of such species-specific characters as colouration of coxae and femora, length of antennal postpedicel and length of male cercus. We had no opportunity to examine the types or topotypes of *L. dalmaticus*; nevertheless, we believe that the complex of diagnostic characters in *L. occidasiaticus* **sp. n.** (see diagnosis of the new species) clearly distinguishes the latter from the *L. dalmaticus* despite possible intraspecific variation of some characters.

Generally, the *Lamprochromus* adult habitus and morphology of hypopygium correspond to the concept of the subfamily Sympycninae. Germann et al. (2011) have analysed the phylogeny of Dolichopodidae and suggested that the genus *Lamprochromus* is positioned within the Rhamphinae clade. However, the latter subfamily still deserves a more detailed study, being at present polyphyletic assemblage of genera. *L. bifasciatus* is a typical wetland species in reed ditches and permanent reed marshes of Belgium (Decler et al. 2015). The West Palaearctic species of the *Lamprochromus* occur in the countries with relatively mild climate, from southern Scandinavia in the North, to North Africa and Central Asia in the South.

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